

ALTERNATIVE FUELS

Moving beyond MTBE

In March, prompted by rising concerns over groundwater contamination, the U.S. Environmental Protection Agency (EPA) called for a phaseout of methyl-*tert*-butyl ether, or MTBE, a chemical added to gasoline to reduce carbon monoxide (CO) pollution. The 1990 Clean Air Act requires that gasoline sold in polluted urban areas contain oxygen additives. This "oxygenation" supposedly promotes complete combustion and reduces exhaust concentrations of CO, which causes headache, mental dullness, dizziness, weakness, nausea, heart disease, and death, in high doses.

MTBE has been the petroleum industry's additive of choice for several years. But when MTBE leaks (mainly from storage tanks), it migrates rapidly through groundwater, causing widespread pollution. In North Carolina, for example, thousands of public and private wells are contaminated with the foul-smelling, slow-degrading compound, and California has already ordered the chemical's phaseout by 2002. The compound has also been shown to cause cancer in animal studies, although the National Toxicology Program voted in 1998 against listing MTBE as reasonably anticipated to be a human carcinogen in its *Report on Carcinogens*.

The EPA has asked Congress to amend the Clean Air Act to replace the existing oxygenate requirement with a standard for fuels made from renewable resources chemicals, and is also proposing to ban MTBE as an immediate threat to health under the Toxic Substances Control Act. The agency issued a 20 March 2000 press release claiming that it has authority under the law to "ban, phase out, limit, or control the manufacture of any chemical substance deemed to pose an unreasonable risk to the public or the environment."

Ronald Melnick, a toxicologist at the NIEHS Laboratory for Computational Biology and Risk Analysis, says Congress should recognize that oxygenated fuels were less beneficial than expected, and that "for the most part, the impact on CO was overestimated in the initial models." For instance, a 1996 review of MTBE by the Committee on Toxicological and Performance Aspects of Oxygenated Fuels of the National Academy of Sciences found that MTBE did not reduce CO emissions as expected.

If MTBE is indeed phased out, what should be done about CO pollution? One

option would involve replacing the Clean Air Act requirement for oxygenated fuels with a performance standard on ambient air CO standards, then allowing states to meet the standard as they deem fit. Another option would focus on getting the dirtiest cars off the road since, Melnick says, about 50% of CO comes from less than 10% of cars—better catalytic converters account for the improved performance of newer cars.

Still another option would be the use of a chemical resembling MTBE, such as ethyl-*tert*-butyl ether (ETBE). But, says Susan Borghoff, a staff scientist at the Chemical Industry Institute of Toxicology, toxicity information on alternatives is sketchy, and neither ETBE nor *tert*-amyl-methyl ether, another proposed replacement, have undergone cancer bioassays. Furthermore, the 22 May 2000 issue of *Chemical & Engineering News* reports that a coalition of 90 environmental groups is asking Congress to ban all ether-based fuel oxygenates—not just MTBE—because they fear all members of this chemical family would present the same problems as MTBE.

Finding a safe replacement for MTBE is the EPA's approach. In its March 20 statement, the agency swore its commitment to creating a "renewable fuel standard for all gasoline . . . particularly [corn-based] ethanol." The agency's call for action is designed to satisfy several goals, according to U.S. Department of Agriculture secretary Dan Glickman, who said, "Ethanol will play an important role in ensuring that we maintain the air quality gains we have achieved to date, and the renewable fuels standard will encourage substantial new growth in the use of ethanol and other renewable fuels across the country." But ethanol has its own problems. Shipment to sites far from the Corn Belt is expensive. In addition, Melnick says, burning ethanol forms acetaldehyde, which causes nasal tumors in rats.

The ultimate solution could be based as much on politics and economics as on public health. While the EPA's solution, ethanol, does not get wholehearted endorsement from toxicologists, neither does the use of oxygenated fuels. Says Myron Mehlman, an adjunct professor of toxicology at the Mount Sinai School of Medicine in New York and a former director of toxicology at Mobil Oil, "[Aside from potential toxicity problems,] they are really not that helpful. We were reducing CO for 25 years before MTBE was introduced." —David J. Tenenbaum

Imprisoned Activist Wins Award

Rodolfo Montiel Flores, founder of a campaign against commercial logging in the Sierra de Petatlán region of southwestern Mexico, is one of six recipients of the 2000 Goldman Environmental Prize. Montiel Flores's campaign, which resulted in the suspension of logging operations by Boise Cascade, one of the largest U.S. logging companies, included attempts to arrange meetings with government officials, organization of protests, and setting up of roadblocks to disrupt convoys of logging trucks. In May 1999 the activist was jailed on charges including participation in an "eco-guerilla" organization. The Goldman Prize recognizes grassroots environmental activists from each of six continental regions.



Goldman Environmental Prize

Sickening Decreases in Asthma

Italian researchers led by Paolo Matricardi have found that exposure to microbes such as *Helicobacter pylori*, hepatitis A virus, and *Toxoplasma gondii* may help protect people from developing asthma and hay fever. Their findings, published in the 12 February 2000 issue of the *British Medical Journal*, are linked to the debate over whether better hygiene and lower rates of childhood infections due to vaccination programs are related to increases in allergic asthma and rhinitis.

Although the study determined that exposure to six airborne pathogens (including those causing measles and chicken pox) had no effect on allergy development, it found that rates of allergic asthma and rhinitis were lower among study participants who had been exposed to two or more orofecal or foodborne microbes.

Safer Water for All Americans

On 28 March 2000, Vice President Al Gore announced new proposed U.S. EPA water standards to help ensure the safety of tap water throughout the United States. One

standard would require water systems that serve fewer than 10,000 people to establish filtration and monitoring requirements to control waterborne microbes such as *Cryptosporidium*, thereby extending the rule that has been in effect for larger water systems since 1998. The new standard could prevent as many as 83,000 cases of waterborne illness annually.

Gore also announced FY 2001 budget proposals that would allocate \$825 million to the Safe

Drinking Water Revolving Loan Fund to offer low-interest loans to communities to help them improve their water systems and meet EPA regulations.

